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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,557	12/31/2003	Allen W. Bettner	P17641	5707

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EXAMINER

A, MINH D

ART UNIT	PAPER NUMBER
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2821

MAIL DATE	DELIVERY MODE
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11/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/750,557	Applicant(s) BETTNER ET AL.	
	Examiner Minh D. A	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-23 and 29-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-23 and 29-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 18-23, 29-3, 34-48 are rejected under 35 U.S.C. 102(b) as being unpatentable by Flint et al (Patent No.: US 6,339,400).

Regarding claim 18, Flint discloses, in figures 2-4, 6 and 13, a display device having a skin(RF foil)(140) of a computing device (see figure 13), the skin (140) comprising a conductive material; and a slot(130, 131) in the skin(140), a slot(130, 133) in the skin (140), said slot comprising a slot antenna (133, 132), wherein the slot antenna(132-133) inherently comprises a sector slot antenna having a directional radiation pattern (for example in figure 6, the antenna (61) and antenna (62) have a different directional radiation pattern), wherein the sector slot antenna comprises a first sector slot antenna in a sector antenna system, said sector antenna system further comprising: a second sector slot antenna in the skin(140, said second sector slot antenna having a directional radiation pattern in a different direction than the first sector slot antenna. Col.3, lines 24-67 to col.4, lines 1-41.

Regarding claim 19, Flint discloses a plurality of additional sector slot antennas in the skin, each of the plurality of additional sector slot antennas having a directional radiation pattern covering a different sector surrounding the computing device. See figures 3-4, 6-7.

Regarding claim 20, Flint discloses wherein the first sector slot antenna has the directional radiation pattern for multiple resonant frequency bands. Figures 3-4 and 13, col. 3, lines 15-63.

Regarding claim 21, Flint discloses, in figures 3-4 and 7, a tuning element coupled to the slot, said tuning element to tune a secondary frequency for the slot antenna.

Regarding claim 22, Flint discloses, in figures 3-4 and 7, wherein the tuning element comprises a stub capacitor.

Regarding claim 23, Flint discloses, in figures 3-4 and 7, a third sector slot antenna having a same directional radiation pattern as the first sector slot antenna, said first sector slot antenna and said third sector slot antenna comprising a diversity antenna.

Regarding claim 29, Flint discloses, in figures 2-4 and 13, a display device having a skin(RF foil)(140) of a computing device (see figure 13), the skin (140) comprising a conductive material; and a slot(130, 131) in the skin(140), a slot(130, 133) in the skin (140), said slot comprising a slot antenna (133, 132), wherein the slot antenna(132-133) inherently comprises a sector slot antenna having a directional radiation pattern, wherein the sector slot antenna comprises a first sector slot antenna in a sector antenna system, said sector antenna

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system further comprising: a second sector slot antenna in the skin(140, said second sector slot antenna having a directional radiation pattern in a different direction than the first sector slot antenna. Col.3, lines 24-67 to col.4, lines 1-41.

Regarding claim 30, Flint discloses the sector antenna system further comprising: a plurality of additional sector slot antennas in the skin, each of the plurality of additional sector slot antennas having a directional radiation pattern covering a different sector surrounding the notebook computer. Figures 3-4 and 13.

Regarding claim 31, Flint discloses, figure 2, a third sector slot antenna having a same directional radiation pattern as the first sector slot antenna, said first sector slot antenna and said third sector slot antenna comprising a diversity antenna.

Regarding claim 34, Flint discloses, figures 3-4 and 7, wherein the conductive material comprises an outer layer of the skin in at least a vicinity of the slot of the first sector slot antenna.

Regarding claim 35, Flint discloses, figures 3-4 and 7, wherein the outer layer comprises one of a conductive coating and a conductive mesh.

Regarding claim 36, Flint discloses, figures 3-4 and 7, wherein the slot of the first sector slot antenna extends through only the outer layer.

Regarding claim 37, Flint discloses, figures 3-4 and 7, wherein the slot of the first sector slot antenna extends through multiple layers of the skin.

Regarding claim 38, Flint discloses, figures 3-4 and 7, wherein the skin is made entirely of the conductive material.

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Regarding claim 39, Flint discloses, figures 3-4 and 7, the computing device comprises one of a notebook computer, a tablet computer, and a handheld computer.

Regarding claim 40, Flint discloses, figures 3-4 and 7, wherein the computing device comprises at least one of a base and a lid, and wherein the slot of the first sector slot antenna is located in at least one of an edge of the base, an edge of the lid, an outside of the lid, an inside of the lid, through the lid, and through the base.

Regarding claim 41, Flint discloses, figures 3-4 and 7, the first sector slot antenna comprising a cavity behind the slot, said cavity having a depth of approximately one-quarter of a wavelength of a resonant frequency of the first sector slot antenna.

Regarding claim 42, Flint discloses, figures 3-4 and 7, the first sector slot antenna comprising an impedance plane coupled to the skin under the slot of the first sector slot antenna.

Regarding claim 43, Flint discloses, figures 3-4 and 7, wherein the impedance plane comprises an Artificial Magnetic Conductor (AMC).

Regarding claim 44, Flint discloses, figures 3-4 and 7, wherein the impedance plane comprises a multiple band impedance plane, said multiple band impedance plane to act as a magnetic conductor for a primary resonant frequency and a secondary resonant frequency of the slot.

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Regarding claim 45, Flint discloses, figures 3-4 and 7, wherein the first sector slot antenna has a primary resonant frequency and a secondary resonant frequency.

Regarding claim 46, Flint discloses, figures 3-4 and 7, wherein the primary resonant frequency and the secondary resonant frequency are tuned for two different wireless communications standards.

Regarding claim 47, Flint discloses, figures 3-4 and 7, wherein the two wireless communications standards comprise at least one of Bluetooth, 802.11a, 802.11b, and 802.11g.

Regarding claim 48, Flint discloses, figures 3-4 and 7, wherein at least one of a thickness of the skin in a vicinity of the slot, a width of the slot, a length of the slot, and a tuning element at a feed point of the slot are tuned to achieve at least one of a target impedance and a primary resonant frequency of the slot.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 32-33 are rejected under 35 U.S.C. 102(b) as being unpatentable by Asano et al (Pub No: US 2004/0257283).

Regarding claim 32, Asan discloses in figures 5-8, that, a skin of a computing device, said skin comprising a conductive material (metal display cover), a first slot in the skin, said first slot comprising a first sector slot antenna having a radiation pattern in a first direction; a second slot in the skin(figure 8), said second slot comprising a second sector slot antenna having a radiation pattern in a second direction; a third slot in the skin, said third slot comprising a third sector slot antenna having a radiation pattern in a third direction; and a fourth slot in the skin, said fourth slot comprising a fourth sector slot antenna having a radiation pattern in a fourth direction. Col.3, paragraph [0036] to col.5, paragraph [0048].

Regarding claim 33, Asan discloses in figures 7-8, wherein the first, second, third, and fourth sector slot antennas have a primary resonant frequency and a secondary resonant frequency tuned for two different wireless communications standards. Col.4, paragraph [0040] to col.5, paragraph [0047].

Response to Arguments

5. Applicant's communication filed on 8/2/07 has been carefully considered by the examiner. The arguments advanced therein are persuasive with respect to the rejections of record, and those rejections are accordingly withdrawn. In view of a further search, however, a new rejection is set forth below. This action is not made final.

Citation of relevant prior art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ikegaya et al(US 6,847,329) and Casarez et al. (US 5,913,174) are cited to show a slot antenna.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 AM-2:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner

Minh A

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Date 10/20/07

Shih-Chao Chen
SHIH-CHAO CHEN
PRIMARY EXAMINER